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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,401	02/12/2007	Henri-Louis Schwal	0559-1119	2537
26285	7590	03/30/2011	EXAMINER	
K&L GATES LLP 210 SIXTH AVENUE PITTSBURGH, PA 15222-2613			CERNOCH, STEVEN MICHAEL	
			ART UNIT	PAPER NUMBER
			3752	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/585,401	<b>Applicant(s)</b> SCHWAL ET AL.	
	<b>Examiner</b> STEVEN M. CERNOCH	<b>Art Unit</b> 3752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2011.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-15 and 17-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,8-15 and 17-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 July 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

Claims 8, 10 and 22 are objected to because of the following informalities:

Claims 8 and 22 are dependent upon a cancelled claim while claim 10 is dependent upon claim 8. Claims 8 and 22 will be taken to be dependent upon claim 3 until further notice. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-6, 8-10, 13-15, 17-19 and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lubsen et al. (US Pat No 4,382,552) in view of Abplanalp (US Pat No 6,062,493).

Re claim 1 and 15, Lubsen et al. shows a nozzle (Fig. 1, 1) for spraying a liquid into the atmosphere, comprising: a secondary jet (Fig. 2, 5) connected to means (30) for supplying said liquid, said means including a reservoir (9) containing said liquid, and an orifice (13); and including means (24) for effecting a first fractionation of said liquid and an expansion chamber (27) in which the liquid that has been submitted to said first fractionation is introduced; a principal jet (3) connected to means for generating a fluid flow (col. 2, lines 5-7), including means (42) for effecting a second fractionation of said liquid and an outlet orifice (Fig. 1, 4) to the atmosphere in which fluid which has been submitted to said second fractionation is introduced; and means (Fig. 2, 13) for connecting said secondary jet to said principal jet, connecting the expansion chamber

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(43/45) and the means (42) for effecting the second fractionation of said liquid, creating a fluid mixture; and means (col. 1, lines 10-20) for checking and regulating the fluids in the apparatus.

Lubsen et al. does not teach gas under pressure but water under pressure.

However, Abplanalp teaches a sprayer utilizing multiple canisters for liquid and a propellant gas as well as a venturi and does teach gas under pressure (col. 3, line 37).

Therefore it would have been obvious to one of ordinary skill in the art to change the water under pressure of Lubsen et al. to the gas under pressure of Abplanalp for a finer spray of particles bringing greater accuracy to the spray.

Re claim 2, Lubsen et al. as modified by Abplanalp shows that the secondary jet (Lubsen - Fig. 2, 5) is in the form of a cylinder, the central portion of said cylinder is occupied by the principal jet (Lubsen - 3), which also has a cylindrical configuration, an annular cross-sectional space created thereby forming the expansion chamber (Lubsen - 27).

Re claim 3, Lubsen et al. as modified by Abplanalp shows that the first and second fractionation means comprise a first and second venturi (Lubsen - Fig. 2, 24, 42) respectively.

Re claim 4, Lubsen et al. as modified by Abplanalp shows that the first venturi (Lubsen - Fig. 2, 24) comprises a tapering part (Lubsen - left of 26) followed by a calibrated cylindrical portion (Lubsen - 26) terminating in the expansion chamber (Lubsen - 27).

Re claim 5, Lubsen et al. as modified by Abplanalp shows that the tapering part (Lubsen - Fig. 2, left of 26) is in the form of a truncated cone, which is adapted to the calibrated cylindrical portion (Lubsen - 26) through the intermediary of a bearing (Lubsen - 23) so that the reduction in cross-section between the supply conduit (Lubsen - 30) and the calibrated cylindrical portion (Lubsen - 26) is discontinuous.

Re claim 6, Lubsen et al. as modified by Abplanalp shows that the calibrated cylindrical portion (Lubsen - Fig. 2, 26) terminates in the expansion chamber (Lubsen - 27) in a recessed manner relative to a wall of said expansion chamber.

Re claim 8, Lubsen et al. as modified by Abplanalp shows that the means (Lubsen - Fig. 2, 13) for connecting the secondary jet (Lubsen - 5) to the principal jet (Lubsen - 3) comprise a plurality of conduits (Lubsen - 47) disposed radially between the expansion chamber (Lubsen - 43/45) and the cylindrical portion (Lubsen - 44) of the second Venturi.

Re claim 9, Lubsen et al. as modified by Abplanalp shows that the expansion chamber (Lubsen - Fig. 2, outer diameter of 45) has sudden variations in thickness along the longitudinal axis.

Re claim 10, Lubsen et al. as modified by Abplanalp shows that the expansion chamber (Lubsen - Fig. 2, 43) has a smallest thickness in a vicinity of the plurality of conduits (Lubsen - 47).

Re claim 13, Lubsen et al. as modified by Abplanalp shows that said first fractionation means (Lubsen - Fig. 2, 24) for said liquid comprise two first Venturi (Lubsen - 24, 29) terminating in the expansion chamber (Lubsen - 27).

Re claim 14, Lubsen et al. as modified by Abplanalp shows that said two first Venturi (Lubsen - Fig. 2, 24, 29) each comprise a tapering part (Lubsen - left of 26, forward of 29) followed by a calibrated cylindrical portion (Lubsen - 25, 26), said calibrated cylindrical portion having a different diameter for each said two first Venturi.

Re claim 17, Lubsen et al. shows a method of spraying a liquid into the atmosphere, said method comprising steps of: effecting a first fractionation (Fig. 2, 24) of said liquid by suction through a conduit (30), which has a first Venturi (24) terminating in an expansion chamber (27) which is subjected to a negative pressure; and effecting a second fractionation of the liquid from the first fractionation by suction through means (42) for connecting to the expansion chamber (45) to a second Venturi (42) which is supplied by a fluid under pressure, wherein said liquid from said first fractionation (24) is mixed with the fluid creating a fluid mixture which terminates in a low pressure area (45) of an outlet orifice.

Lubsen et al. does not teach gas under pressure but water under pressure.

However, Abplanalp teaches a sprayer utilizing multiple canisters for liquid and a propellant gas as well as a venturi and does teach gas under pressure (col. 3, line 37).

Therefore it would have been obvious to one of ordinary skill in the art to change the water under pressure of Lubsen et al. to the gas under pressure of Abplanalp for a finer spray of particles bringing greater accuracy to the spray.

Re claim 18, Lubsen et al. as modified by Abplanalp shows that the gas supply pressure of the second Venturi (Lubsen - Fig. 2, 42) is regulated (Lubsen - 7) so that the

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pressure prevailing at the outlet (Lubsen - Fig. 1, 4) of said second Venturi is lower than the pressure prevailing in the expansion chamber (Lubsen - Fig. 2, 45).

Re claim 19, Lubsen et al. as modified by Abplanalp shows the claimed invention except that the pressure of the gaseous flow in the principal jet of said spray nozzle is between 2.5 bars and 3.5 bars, and the diameter of the calibrated cylindrical portion of the first venturi is between 0.3 mm and 1 mm, permitting the delivery of liquid 15 ml/min and 40 ml/min. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use said pressure and said diameter, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Re claim 21, Lubsen et al. as modified by Abplanalp does not show that it's for disinfecting premises used for medical, paramedical or food-processing purposes. However, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the structural limitations. Ex parte Masham, 2 USPQ2d 1647 (1987).

Re claim 22, Lubsen et al. as modified by Abplanalp shows that the means (Lubsen - Fig. 2, 13) for connecting the secondary jet (Lubsen - 5) to the principal jet (Lubsen - 3) comprises one conduit (Lubsen - 47) disposed between the expansion chamber (Lubsen - 45) and the cylindrical portion (Lubsen - 44) of the second Venturi.

Re claim 23, Lubsen et al. shows a nozzle (Fig. 1, 1) for spraying a liquid into the atmosphere in the form of a gas-and-liquid fluid, comprising: a secondary jet (Fig. 2, 5) connected to a reservoir (8) configured to supply the liquid, the secondary jet comprising a first Venturi (24) configured to fractionate the liquid into a first fractionation stream and an expansion chamber (27) in fluid communication with the first Venturi and configured to receive the first fractionation stream; a principal jet (3) connected to a source (col. 2, lines 5-7) of fluid under pressure, the principal jet comprising a second Venturi (42) configured to fractionate the first fractionation stream into a second fractionation stream and an outlet orifice (Fig. 1, 4) to the atmosphere; and the secondary jet (5) in fluid communication with the principal jet (3), and in fluid communication with the expansion chamber (27) and the second Venturi such that the liquid is sprayed into the atmosphere in the form of fluid a mixture.

Lubsen et al. does not teach gas under pressure but water under pressure.

However, Abplanalp teaches a sprayer utilizing multiple canisters for liquid and a propellant gas as well as a venturi and does teach gas under pressure (col. 3, line 37).

Therefore it would have been obvious to one of ordinary skill in the art to change the water under pressure of Lubsen et al. to the gas under pressure of Abplanalp for a finer spray of particles bringing greater accuracy to the spray.

Re claim 24, Lubsen et al. as modified by Abplanalp shows an apparatus (Lubsen - Fig. 1) for spraying a liquid into the atmosphere comprising the nozzle of claim 23.



Claims 11, 12 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lubsen et al. (US Pat No 4,382,552) in view of Abplanalp et al. (US Pat No 6,062,493) as applied to claims 1-6, 8-10, 13-15, 17-19 and 21-24 above, and further in view of Wanson et al. (FR 2,487,782).

Re claims 11 & 20, Lubsen et al. as modified by Abplanalp does not show that it additionally comprises means for affecting a third fractionation of said liquid.

However, Wanson et al. does teach a third fractionation of said liquid (Fig. 1, 7).

Therefore it would have been obvious to one of ordinary skill in the art to add to the nozzle of Lubsen et al. the third fractionation of Wanson et al. to further fractionate the liquid.

Re claim 12, Lubsen et al. as modified by Abplanalp does not show that said third fractionation means comprise an ultrasonic resonator and a resonance chamber connected to the outlet orifice in the axis of the principal jet.

However, Wanson et al. does teach that said third fractionation means comprise an ultrasonic resonator (Fig. 1, 5) and a resonance chamber (11) connected to the outlet orifice in the axis of the principal jet.

Therefore it would have been obvious to one of ordinary skill in the art to add to the nozzle of Lubsen et al. the chamber of Wanson et al. to aid in the fractionating.

### ***Response to Arguments***

Applicant's arguments filed 1/12/2011 have been fully considered but they are not persuasive. Regarding applicant's arguments against the combination of Lubsen in view of Abplanalp, both references relate to each other in that both are nozzles utilizing

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a fluid to suck up another fluid through a venturi to be sprayed into the atmosphere. In this instance, utilizing propellant gas over water will bring greater accuracy to the spray as the gas will allow the sprayer to spray finer particles. Further, regarding applicant's arguments of MPEP 2143.V, the intended purpose of spraying a diluted fluid would still be accomplished, it would just be diluted with air instead of water, therefore the prior art would not be rendered unsatisfactory for its intended purpose.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEVEN M. CERNOCH whose telephone number is (571)270-3540. The examiner can normally be reached on IFP.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Len Tran can be reached on (571)272-1184. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. M. C./

Examiner, Art Unit 3752

3/24/2011

/Jason J Boeckmann/

Primary Examiner, Art Unit 3752